

CLAIMS

1. A phacoemulsification needle characterised by a rod member arranged for transmission of ultrasonic energy to an ocular substrate to effect emulsification thereof, and a hollow tube member having an inner surface defining a lumen arranged for aspiration of emulsified ocular material, the hollow tube member being disposed about the rod member, the rod member having a distal end and a proximal end and the hollow tube member having a distal end and a proximal end.
2. A phacoemulsification needle according to Claim 1, characterised in that the rod member is concentric with a central longitudinal axis of the lumen.
3. A phacoemulsification needle according to Claim 1 or 2, characterised in that the rod member is of uniform cross section throughout its length.
4. A phacoemulsification needle according to Claim 1 or 2, characterised in that the rod member is tapered throughout its length so that the cross section of the proximal end is greater than the cross section of the distal end.
5. A phacoemulsification needle according to any one of the preceding claims, characterised in that the rod member is of circular, oval or polygonal shape in cross section.
6. A phacoemulsification needle according to any one of the preceding claims, characterised in that the rod member has a distal end which is flat, concave, convex or hemispherical.
7. A phacoemulsification needle according to any one of the preceding claims, characterised in that the rod member has an elongate outer surface which is ridged, grooved or provided with protuberances to generate turbulence in the lumen in use.

8. A phacoemulsification needle according to any one of the preceding claims, characterised in that hollow the tube member is circular or oval in cross section.
9. A phacoemulsification needle according to any one of Claims 1 to 7, characterised in that the distal and proximal ends of the hollow tube member have a circular cross section whilst a mid section thereof has an oval cross section.
10. A phacoemulsification needle according to any one of the preceding claims, characterised in that the hollow tube member has an outer surface and the inner surface which define an annular wall.
11. A phacoemulsification needle according to Claim 10, characterised in that the annular wall is of uniform thickness throughout.
12. A phacoemulsification needle according to any one of Claim 10, characterised in that the annular wall has a mid section which is thinner than the thickness of the distal and proximal ends thereof.
13. A phacoemulsification needle according to Claim 12, characterised in that the mid section is thin in a plurality of spaced portions of the annular wall with thicker portions disposed between the thinner portions.
14. A phacoemulsification needle according to any one of the preceding claims, characterised in that the hollow tube member has distal and proximal portions formed of relatively rigid metallic material whilst a mid section is formed of relatively flexible plastics material.
15. A phacoemulsification needle according to any one of the preceding claims, characterised in that the inner surface of the hollow tube member is provided with ridges, grooves or protuberances to generate turbulence in the lumen in use.

16. A phacoemulsification needle according to any one of the preceding claims, characterised in that the hollow tube member has a rubberised exterior or a flexible sleeve applied to an exterior surface thereof to reduce wound leakage.
17. A phacoemulsification needle according to any one of the preceding claims, characterised in that the phacoemulsification needle is arranged for use in bimanual phacoemulsification procedures.
18. A phacoemulsification needle according to any one of the preceding claims characterised in that the rod member is solid throughout.
19. A phacoemulsification needle according to any one of the Claims 1 to 17, characterised in that the rod member is at least partially hollow.
20. A phacoemulsification needle according to Claim 19, characterised in that the rod member has a hollow distal end to facilitate aspiration of ocular material.
21. A phacoemulsification needle according to Claims 19 or 20, characterised in that the proximal end of the rod member is hollow to facilitate aspiration of ocular material.
22. A phacoemulsification needle according to Claim 21, characterised in that the hollow distal and proximal portions are broader in cross section than an intermediate portion of the rod member.
23. A phacoemulsification needle according to Claim 19, characterised in that the proximal end of the rod member is enlarged so as to be compatible with a phacoemulsification hand piece.
24. A phacoemulsification needle according to Claim 21, characterised in that the rod member has an intermediate portion which is hollow so that the rod member is hollow throughout.

25. A phacoemulsification needle according to Claim 24, characterised in that the hollow tube member is arranged to divert aspirated ocular material into the proximal end of the rod member.
26. A phacoemulsification needle according to Claim 24, characterised in that aspirated ocular material is arranged to be diverted through the rod member and the hollow tube member.
27. A phacoemulsification needle according to Claim 20, characterised in that the proximal end of the rod member is solid.
28. A phacoemulsification needle according to Claim 20, characterised in that the rod member is solid except at the distal end.
29. An irrigation cannula or irrigating chopper characterised by a hollow tube member extending about the cannula or chopper, which hollow tube member has a flexible mid portion to reduce wound leakage.